IFWO

RAW SEQUENCE LISTING   DATE: 08/02/2004
PATENT APPLICATION: US/10/801,847   TIME: 14:48:35

Input Set : N:\Crf3\RULE60\10801847.raw
Output Set: N:\CRF4\08022004\J801847.raw

```
 1 <110> APPLICANT: HERMANN, Thomas
 2          WOLF, Andreas
 3          MORBACH, Susanne
 4          KRAMER, Reinhard
 5 <120> TITLE OF INVENTION: NUCLEOTIDE SEQUENCES CODING FOR THE OtsA PROTEIN
 6 <130> FILE REFERENCE: 215482USOX
 7 <140> CURRENT APPLICATION NUMBER: US/10/801,847
 8 <141> CURRENT FILING DATE: 2004-03-17
 9 <150> PRIOR APPLICATION NUMBER: US/10/058,945
10 <151> PRIOR FILING DATE: 2002-01-30
11 <150> PRIOR APPLICATION NUMBER: DE 10103873.9
12 <151> PRIOR FILING DATE: 2001-01-30
13 <150> PRIOR APPLICATION NUMBER: DE 10110760.9
14 <151> PRIOR FILING DATE: 2000-03-07
15 <160> NUMBER OF SEQ ID NOS: 4
16 <170> SOFTWARE: PatentIn version 3.1
18 <210> SEQ ID NO: 1
19 <211> LENGTH: 3010
20 <212> TYPE: DNA
21 <213> ORGANISM: Corynebacterium glutamicum
22 <220> FEATURE:
23 <221> NAME/KEY: CDS
24 <222> LOCATION: (884)..(2338)
25 <223> OTHER INFORMATION:
```

ENTERED

```
W--> 26 <400> 1
    27     attgcggggc ttactgcgct gatgggttct gcgttttatt acctcttcgt tgtttattta     60
    28     ggccccgtct ctgccgctgc gattgctgca acagcagttg gtttcactgg tggtttgctt    120
    29     gcccgtcgat tcttgattcc accgttgatt gtggcgattg ccggcatcac accaatgctt    180
    30     ccaggtctag caatttaccg cggaatgtac gccaccctga atgatcaaac actcatgggt    240
    31     ttcaccaaca ttgcggttgc tttagccact gcttcatcac ttgccgctgg cgtggttttg    300
    32     ggtgagtgga ttgcccgcag gctacgtcgt ccaccacgct tcaacccata ccgtgcattt    360
    33     accaaggcga atgagttctc cttccaggag gaagctgagc agaatcagcg ccggcagaga    420
    34     aaacgtccaa agactaatca gagattcggt aataaaggt aaaaatcaac ctgcttaggc    480
    35     gtctttcgct aaatagcgt agaatatcgg tcgatcgct tttaaacact caggaggatc    540
    36     cttgccggcc aaaatcacgg acactcgtcc caccccagaa tcccttcacg ctgttgaaga    600
    37     ggaaaccgca gccggtgccc gcaggattgt tgccacctat tctaaggact tcttcgacgg    660
    38     cgtcactttg atgtgcatgc tcggcgttga acctcagggc ctgcgttaca ccaaggtcgc    720
    39     ttctgaacac gaggaagctc agccaaagaa ggctacaaag cggactcgta aggcaccagc    780
    40     taagaaggct gctgctaaga aaacgaccaa gaagaccact aagaaaacta ctaaaaagac    840
    41     caccgcaaag aagaccacaa agaagtctta agccggatct tat atg gat gat tcc     895
    42                                                     Met Asp Asp Ser
    43                                                      1
    44         aat agc ttt gta gtt gtt gct aac cgt ctg cca gtg gat atg act gtc    943
```

RAW SEQUENCE LISTING   DATE: 08/02/2004
PATENT APPLICATION: **US/10/801,847**   TIME: 14:48:35

Input Set : **N:\Crf3\RULE60\10801847.raw**
Output Set: **N:\CRF4\08022004\J801847.raw**

```
45    Asn Ser Phe Val Val Val Ala Asn Arg Leu Pro Val Asp Met Thr Val
46    5                  10                 15                20
47    cac cca gat ggt agc tat agc atc tcc ccc agc ccc ggt ggc ctt gtc    991
48    His Pro Asp Gly Ser Tyr Ser Ile Ser Pro Ser Pro Gly Gly Leu Val
49                       25                 30                35
50    acg ggg ctt tcc ccc gtt ctg gaa caa cat cgt gga tgt tgg gtc gga    1039
51    Thr Gly Leu Ser Pro Val Leu Glu Gln His Arg Gly Cys Trp Val Gly
52                       40                 45                50
53    tgg cct gga act gta gat gtt gca ccc gaa cca ttt cga aca gat acg    1087
54    Trp Pro Gly Thr Val Asp Val Ala Pro Glu Pro Phe Arg Thr Asp Thr
55                 55                 60                 65
56    ggt gtt ttg ctg cac cct gtt gtc ctc act gca agt gac tat gaa ggc    1135
57    Gly Val Leu Leu His Pro Val Val Leu Thr Ala Ser Asp Tyr Glu Gly
58          70                 75                 80
59    ttc tac gag ggc ttt tca aac gca acg ctg tgg cct ctt ttc cac gat    1183
60    Phe Tyr Glu Gly Phe Ser Asn Ala Thr Leu Trp Pro Leu Phe His Asp
61    85                 90                 95                100
62    ctg att gtt act ccg gtg tac aac acc gat tgg tgg cat gcg ttt cgg    1231
63    Leu Ile Val Thr Pro Val Tyr Asn Thr Asp Trp Trp His Ala Phe Arg
64                       105                110               115
65    gag gta aac ctc aag ttc gct gaa gcc gtg agc caa gtg gcg gca cac    1279
66    Glu Val Asn Leu Lys Phe Ala Glu Ala Val Ser Gln Val Ala Ala His
67                       120                125               130
68    ggt gcc act gtg tgg gtg cag gac tat cag ctg ttg ctg gtt cct ggc    1327
69    Gly Ala Thr Val Trp Val Gln Asp Tyr Gln Leu Leu Leu Val Pro Gly
70                 135                140                145
71    att ttg cgc cag atg cgc cct gat ttg aag atc ggt ttc ttc ctc cac    1375
72    Ile Leu Arg Gln Met Arg Pro Asp Leu Lys Ile Gly Phe Phe Leu His
73          150                155                160
74    att ccc ttc cct tcc cct gat ctg ttc cgt cag ctg ccg tgg cgt gaa    1423
75    Ile Pro Phe Pro Ser Pro Asp Leu Phe Arg Gln Leu Pro Trp Arg Glu
76    165                170                175               180
77    gag att gtt cga ggc atg ctg ggc gca gat ttg gtg gga ttc cat ttg    1471
78    Glu Ile Val Arg Gly Met Leu Gly Ala Asp Leu Val Gly Phe His Leu
79                       185                190               195
80    gtt caa aac gca gaa aac ttc ctt gcg tta acc cag cag gtt gcc ggc    1519
81    Val Gln Asn Ala Glu Asn Phe Leu Ala Leu Thr Gln Gln Val Ala Gly
82                       200                205               210
83    act gcc ggg tct cat gtg ggt cag ccg gac acc ttg cag gtc agt ggt    1567
84    Thr Ala Gly Ser His Val Gly Gln Pro Asp Thr Leu Gln Val Ser Gly
85                 215                220                225
86    gaa gca ttg gtg cgt gag att ggc gct cat gtt gaa acc gct gac gga    1615
87    Glu Ala Leu Val Arg Glu Ile Gly Ala His Val Glu Thr Ala Asp Gly
88          230                235                240
89    agg cga gtt agc gtc ggg gcg ttc ccg atc tcg att gat gtt gaa atg    1663
90    Arg Arg Val Ser Val Gly Ala Phe Pro Ile Ser Ile Asp Val Glu Met
91    245                250                255               260
92    ttt ggg gag gcg tcg aaa agc gcc gtt ctt gat ctt tta aaa acg ctc    1711
93    Phe Gly Glu Ala Ser Lys Ser Ala Val Leu Asp Leu Leu Lys Thr Leu
```

RAW SEQUENCE LISTING   DATE: 08/02/2004
PATENT APPLICATION: US/10/801,847   TIME: 14:48:35

Input Set : **N:\Crf3\RULE60\10801847.raw**
Output Set: **N:\CRF4\08022004\J801847.raw**

```
94                    265              270                 275
95   gac gag ccg gaa acc gta ttc ctg ggc gtt gac cga ctg gac tac acc    1759
96   Asp Glu Pro Glu Thr Val Phe Leu Gly Val Asp Arg Leu Asp Tyr Thr
97               280             285                 290
98   aag ggc att ttg cag cgc ctg ctt gcg ttt gag gaa ctg ctg gaa tcc    1807
99   Lys Gly Ile Leu Gln Arg Leu Leu Ala Phe Glu Glu Leu Leu Glu Ser
100            295             300                 305
101   ggc gcg ttg gag gcc gac aaa gct gtg ttg ctg cag gtc gcg acg cct   1855
102   Gly Ala Leu Glu Ala Asp Lys Ala Val Leu Leu Gln Val Ala Thr Pro
103         310             315             320
104   tcg cgt gag cgc att gat cac tat cgt gtg tcg cgt tcg cag gtc gag   1903
105   Ser Arg Glu Arg Ile Asp His Tyr Arg Val Ser Arg Ser Gln Val Glu
106   325             330             335                 340
107   gaa gcc gtc ggc cgt atc aat ggt cgt ttc ggt cgc atg ggg cgt ccc   1951
108   Glu Ala Val Gly Arg Ile Asn Gly Arg Phe Gly Arg Met Gly Arg Pro
109                 345             350                 355
110   gtg gtg cat tat cta cac agg tca ttg agc aaa aat gat ctc cag gtg   1999
111   Val Val His Tyr Leu His Arg Ser Leu Ser Lys Asn Asp Leu Gln Val
112                 360             365                 370
113   ctg tat acc gca gcc gat gtc atg ctg gtt acg cct ttt aaa gac ggt   2047
114   Leu Tyr Thr Ala Ala Asp Val Met Leu Val Thr Pro Phe Lys Asp Gly
115             375             380                 385
116   atg aac ttg gtg gct aaa gaa ttc gtg gcc aac cac cgc gac ggc act   2095
117   Met Asn Leu Val Ala Lys Glu Phe Val Ala Asn His Arg Asp Gly Thr
118         390             395             400
119   ggt gct ttg gtg ctg tcc gaa ttt gcc ggc gcg gcc act gag ctg acc   2143
120   Gly Ala Leu Val Leu Ser Glu Phe Ala Gly Ala Ala Thr Glu Leu Thr
121   405             410             415                 420
122   ggt gcg tat tta tgc aac cca ttt gat gtg gaa tcc atc aaa cgg caa   2191
123   Gly Ala Tyr Leu Cys Asn Pro Phe Asp Val Glu Ser Ile Lys Arg Gln
124                 425             430             435
125   atg gtg gca gct gtc cat gat ttg aag cac aat ccg gaa tct gcg gca   2239
126   Met Val Ala Ala Val His Asp Leu Lys His Asn Pro Glu Ser Ala Ala
127                 440             445             450
128   acg cga atg aaa acg aac agc gag cag gtc tat acc cac gac gtc aac   2287
129   Thr Arg Met Lys Thr Asn Ser Glu Gln Val Tyr Thr His Asp Val Asn
130         455             460             465
131   gtg tgg gct aat agt ttc ctg gat tgt ttg gca cag tcg gga gaa aac   2335
132   Val Trp Ala Asn Ser Phe Leu Asp Cys Leu Ala Gln Ser Gly Glu Asn
133         470             475             480
134   tca tgaaccgcgc acgaatcgcg accataggcg ttcttccgct tgctttactg       2388
135   Ser
136   485
137   ctggcgtcct gtggttcaga caccgtggaa atgacagatt ccacctggtt ggtgaccaat  2448
138   atttacaccg atccagatga gtcgaattcg atcagtaatc ttgtcatttc ccagcccagc  2508
139   ttagattttg gcaattcttc cctgtctggt ttcactggct gtgtgccttt tacggggcgt  2568
140   gcggaattct tccaaaatgg tgagcaaagc tctgttctgg atgccgatta tgtgaccttg  2628
141   tcttccctgg atttcgataa acttcccgat gattgccaag acaagaact caaagttcat   2688
142   aacgagctgg ttgatcttct gcctggttct tttgaaatct ccaggacttc tggttcagaa  2748
```

RAW SEQUENCE LISTING   DATE: 08/02/2004
PATENT APPLICATION: **US/10/801,847**   TIME: 14:48:35

Input Set : **N:\Crf3\RULE60\10801847.raw**
Output Set: **N:\CRF4\08022004\J801847.raw**

```
143        atcttgctga ctagcgatgt cgatgaactc gatcggccag caatccgctt ggtgtcctgg      2808
144        atcgcgccga catcttaagg tgccagggct ttaaagtgcc aggggttctg tgggatccgt      2868
145        acactggttc ccatgacttt gactattgag gaaatcgcca agaccaaaaa gcttttggtt      2928
146        gtgtccgatt ttgatggaac catcgcagga tttagcaagg acgcttacaa cgttcctatc      2988
147        aaccagaaat ccctcaaggc gg                                                3010
149  <210> SEQ ID NO: 2
150  <211> LENGTH: 485
151  <212> TYPE: PRT
152  <213> ORGANISM: Corynebacterium glutamicum
153  <400> SEQUENCE: 2
154        Met Asp Asp Ser Asn Ser Phe Val Val Val Ala Asn Arg Leu Pro Val
155        1                   5                   10                  15
156        Asp Met Thr Val His Pro Asp Gly Ser Tyr Ser Ile Ser Pro Ser Pro
157                        20                  25                  30
158        Gly Gly Leu Val Thr Gly Leu Ser Pro Val Leu Glu Gln His Arg Gly
159                    35                  40                  45
160        Cys Trp Val Gly Trp Pro Gly Thr Val Asp Val Ala Pro Glu Pro Phe
161            50                  55                  60
162        Arg Thr Asp Thr Gly Val Leu Leu His Pro Val Val Leu Thr Ala Ser
163        65                  70                  75                  80
164        Asp Tyr Glu Gly Phe Tyr Glu Gly Phe Ser Asn Ala Thr Leu Trp Pro
165                        85                  90                  95
166        Leu Phe His Asp Leu Ile Val Thr Pro Val Tyr Asn Thr Asp Trp Trp
167                        100                 105                 110
168        His Ala Phe Arg Glu Val Asn Leu Lys Phe Ala Glu Ala Val Ser Gln
169                    115                 120                 125
170        Val Ala Ala His Gly Ala Thr Val Trp Val Gln Asp Tyr Gln Leu Leu
171                    130                 135                 140
172        Leu Val Pro Gly Ile Leu Arg Gln Met Arg Pro Asp Leu Lys Ile Gly
173        145                 150                 155                 160
174        Phe Phe Leu His Ile Pro Phe Pro Ser Pro Asp Leu Phe Arg Gln Leu
175                        165                 170                 175
176        Pro Trp Arg Glu Glu Ile Val Arg Gly Met Leu Gly Ala Asp Leu Val
177                    180                 185                 190
178        Gly Phe His Leu Val Gln Asn Ala Glu Asn Phe Leu Ala Leu Thr Gln
179                    195                 200                 205
180        Gln Val Ala Gly Thr Ala Gly Ser His Val Gly Gln Pro Asp Thr Leu
181            210                 215                 220
182        Gln Val Ser Gly Glu Ala Leu Val Arg Glu Ile Gly Ala His Val Glu
183        225                 230                 235                 240
184        Thr Ala Asp Gly Arg Arg Val Ser Val Gly Ala Phe Pro Ile Ser Ile
185                        245                 250                 255
186        Asp Val Glu Met Phe Gly Glu Ala Ser Lys Ser Ala Val Leu Asp Leu
187                        260                 265                 270
188        Leu Lys Thr Leu Asp Glu Pro Glu Thr Val Phe Leu Gly Val Asp Arg
189                    275                 280                 285
190        Leu Asp Tyr Thr Lys Gly Ile Leu Gln Arg Leu Leu Ala Phe Glu Glu
191            290                 295                 300
192        Leu Leu Glu Ser Gly Ala Leu Glu Ala Asp Lys Ala Val Leu Leu Gln
```

```
193        305                   310                 315                 320
194        Val Ala Thr Pro Ser Arg Glu Arg Ile Asp His Tyr Arg Val Ser Arg
195                        325                 330                 335
196        Ser Gln Val Glu Glu Ala Val Gly Arg Ile Asn Gly Arg Phe Gly Arg
197                        340                 345                 350
198        Met Gly Arg Pro Val Val His Tyr Leu His Arg Ser Leu Ser Lys Asn
199                355                 360                 365
200        Asp Leu Gln Val Leu Tyr Thr Ala Ala Asp Val Met Leu Val Thr Pro
201                370                 375                 380
202        Phe Lys Asp Gly Met Asn Leu Val Ala Lys Glu Phe Val Ala Asn His
203        385                 390                 395                 400
204        Arg Asp Gly Thr Gly Ala Leu Val Leu Ser Glu Phe Ala Gly Ala Ala
205                        405                 410                 415
206        Thr Glu Leu Thr Gly Ala Tyr Leu Cys Asn Pro Phe Asp Val Glu Ser
207                        420                 425                 430
208        Ile Lys Arg Gln Met Val Ala Ala Val His Asp Leu Lys His Asn Pro
209                435                 440                 445
210        Glu Ser Ala Ala Thr Arg Met Lys Thr Asn Ser Glu Gln Val Tyr Thr
211                450                 455                 460
212        His Asp Val Asn Val Trp Ala Asn Ser Phe Leu Asp Cys Leu Ala Gln
213        465                 470                 475                 480
214        Ser Gly Glu Asn Ser
215                        485
217 <210> SEQ ID NO: 3
218 <211> LENGTH: 24
219 <212> TYPE: DNA
220 <213> ORGANISM: Corynebacterium glutamicum
221 <400> SEQUENCE: 3
222        cacctattct aaggacttct tcga                                    24
224 <210> SEQ ID NO: 4
225 <211> LENGTH: 22
226 <212> TYPE: DNA
227 <213> ORGANISM: Corynebacterium glutamicum
228 <400> SEQUENCE: 4
229        accaaccagg tggaatctgt ca                                      22
```

VERIFICATION SUMMARY   DATE: 08/02/2004
PATENT APPLICATION: **US/10/801,847**   TIME: 14:48:36

Input Set : **N:\Crf3\RULE60\10801847.raw**
Output Set: **N:\CRF4\08022004\J801847.raw**

L:26 M:258 W: Mandatory Feature missing, <223> Blank for SEQ#:1,Line#:0